Abstract

The group of inventions relates to magnetic systems, in particular to a method for controlling the flux of electromagnet and to the structural design of an electromagnet which is used for carrying out said method. The inventive structures of the electromagnet can be mainly used for electromechanical actuating devices and comprise a magnetic coil provided with a composite magnetic core made at least partially of hard-magnetic material and provided at least with one air gap. The novelty of the invention lies in that the composite magnetic core is embodied in such a way that it has at least two stable magnetic states, said magnetic core has each said state (the air gap being minimized) as a result of the action of the control current pulses supplied to the magnetic coil winding and having different (opposite) polarities, respectively. The specified values of the magnetic flux correspond to the stable states of the magnetic core of the electromagnet when in it is devoid of electric current in the magnetic coil winding thereof. Said invention makes it possible to substantially increase the efficiency of electromagnet by increasing the attractive and holding forces thereof, improving the mass and dimensional characteristics and the operational safety thereof, and also by energy saving and extending the functional

capabilities of said structural design of the inventive electromagnet which uses the inventive method for controlling the magnetic flux.